

**Notice of Allowability**

Application No.

10/050,087

Examiner

Hung T Vy

Applicant(s)

DI SOPRA ET AL.

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-- **Th MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/01/2003.
2. ☒ The allowed claim(s) is/are 1 and 3-48.
3. ☒ The drawings filed on 15 April 2002 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No. \_\_\_\_\_.
- (b) ☐ including changes required by the proposed drawing correction filed \_\_\_\_\_, which has been approved by the Examiner.
- (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- 1 ☐ Notice of References Cited (PTO-892)
- 2 ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3 ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. \_\_\_\_\_
- 4 ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- 5 ☐ Notice of Informal Patent Application (PTO-152)
- 6 ☒ Interview Summary (PTO-413), Paper No. 12/04/2003.
- 7 ☒ Examiner's Amendment/Comment
- 8 ☐ Examiner's Statement of Reasons for Allowance
- 9 ☐ Other

*Paul Jp*  
*SPB2828*

### **Examiner's Amendment**

1. An examiner's amendment to the record appears below. Should the changes and /or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.3.12. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.
2. The following claim has been amended upon agreement by applicant during a telephone conversation with Paul A. Fattibene on December 1, 2003.

### **Claim Amendments**

Claim 1. (Currently Amended) A method of stabilizing the polarization of a vertical cavity surface emitting laser (VCSEL) device, comprising:

forming a plurality of symmetrical VCSEL elements capable of emitting substantially a single mode radiation of substantially the same wavelength and arranged to have a laterally patterned reflectivity so as to allow phase coupling between at least two of the plurality of symmetrical VCSEL elements;

providing a phase-coupling region having a lateral dimension and a longitudinal dimension, substantially perpendicular to the major emission direction of the VCSEL device, the lateral dimension being less than the longitudinal dimension, wherein the lateral dimension is in the range from about 7  $\mu\text{m}$  to about 0.1  $\mu\text{m}$ , and

initiating emission of radiation by injecting current within a range assuring a single mode of operation into the at least two of the plurality of VCSEL

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elements to produce phase-coupled radiation, wherein the polarization direction of each of the at least two of the plurality of symmetrical VCSEL elements remains substantially constant during operation and exhibit an equal probability for radiating in one of two linear polarization states.

Claim 2. (canceled)

### Reasons for Allowance

3. Claims 1, 3-48 are allowed.

The following is an examiner's statement of reason for allowance:

None of the references of record teaches or suggests the claimed a method of stabilizing the polarization of a vertical cavity surface emitting laser (VCSEL) device, comprising: forming a plurality of symmetrical VCSEL elements capable of emitting substantially a single mode radiation of substantially the same wavelength and arranged to have a laterally patterned reflectivity so as to **allow phase coupling between at least two of the plurality of symmetrical VCSEL elements**, providing a phase-coupling region having a lateral dimension and a longitudinal dimension, substantially perpendicular to the major emission direction of the VCSEL device, the lateral dimension being less than the longitudinal dimension, wherein the lateral dimension is in the range from about 7  $\mu\text{m}$  to about 0.1  $\mu\text{m}$ , and initiating emission of radiation by **injecting current within a range assuring a single mode** of operation into the at least two of the plurality of VCSEL elements to produce phase-coupled radiation, wherein the polarization direction of each of the at least two of the plurality of symmetrical VCSEL elements remains substantially constant during operation and exhibit an equal probability for radiating in one of two linear polarization states.

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4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Vy whose telephone number is (703) 605-0759. The examiner can normally be reached on Monday-Friday 8:30 am - 5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul IP can be reached on (703) 308-3098. The fax numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Handwritten signature of Paul IP and the number 5P82828.

Hung T. Vy  
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October 28, 2003